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# Two new species of *Zingiber* (*Zingiberaceae*) from Sabah, Borneo

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**Summary.** *Zingiber eborinum* and *Z. flammeum* are new species of ginger described from Tenom in Sabah.

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R.M. Smith (1988) was the first to review the Bornean members of the genus *Zingiber*. A key to 18 species of the genus was provided by her, which included three widely cultivated species not native to Borneo, and four incompletely known species.

The species described here are very different from any of those previously described; *Zingiber eborinum* in having white bracts and *Z. flammeum* in its bright orange bracts. They were originally collected in the hills around the Tenom valley in Sabah and are hitherto known only from this locality. Both the species are cultivated in the Tenom Orchid Centre, from where very good flowering material was obtained for the present study. Hence all measurements in the descriptions are based on live material.

**Zingiber eborinum** *J. Mood & I. Theilade* **sp. nov.** *species Z. puberulo Ridley var. borneensi R.M. Smith et Z. acuminato var. borneensi Valeton affinis, a quibus differt foliis minoribus ovatis, scapo brevi procumbente, inflorescentia basali eburnea, labello aurantiaco minutissime medialiter bicarinato. Typus: J. Mood 432, Sabah, cultivated in the Tenom Orchid Centre (originally collected in 1989 from Paling Paling Hills near Tenom) (holotypus SAN, incl. alcohol-preserved material and slides).* (Figs. 1 & 2)

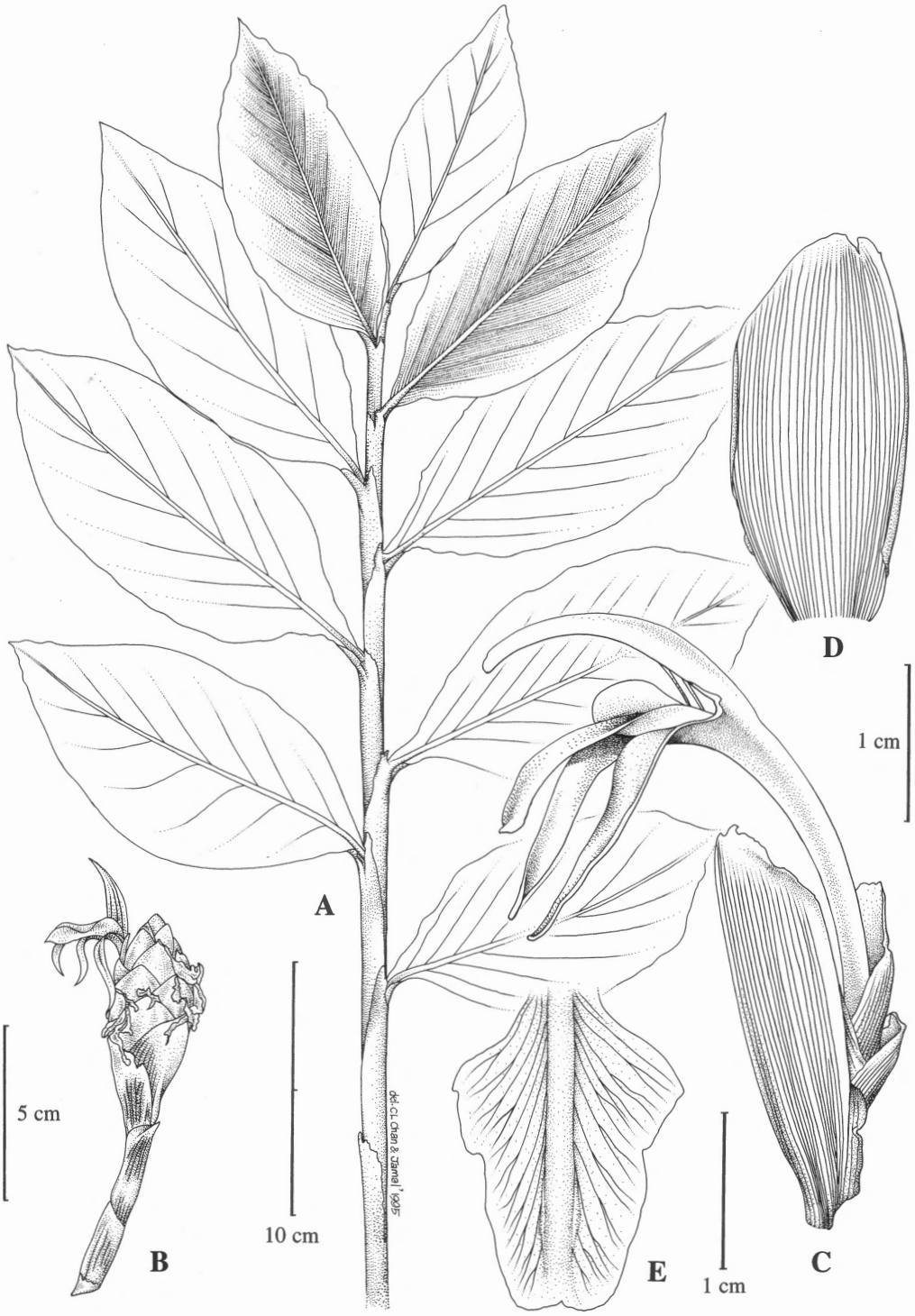


**Fig. 1.** *Zingiber eborinum*. **A.** Leafy stem. **B.** Inflorescence. **C.** Flower subtended by the bract. **D.** Bract. **E.** Labellum. All from *J. Mood* 432.

**Fig. 2.** Inflorescence of *Zingiber eborinum* (Photo: J. Mood).

Leafy stem 0.75–1 m. Leaf sheaths pubescent towards petiole. Ligule bilobed, 7 mm long, papery, glabrous. Petiole 2 mm long, pubescent. Leaves ovate, 17–23 × 6–9.5 cm, dark green, waxy with a thick texture, glabrous above, with fine silky hairs below, midrib towards base below finely hairy, margin densely pubescent with brownish hairs. Scape radical, subterranean, 5–6 cm long. Scape sheaths pale reddish. Inflorescence erect or slightly decumbent, ovate, 7–8 × 3–3.5 cm, whitish. Bracts obovate, 2.6–3 × 1.5–2.5 cm, glabrous, ivory-white, lower bracts with a very slight pink hue, edge brown, slightly ruffled. Bracteoles obovate, 1.5 × 1 cm, whitish. Calyx pale orange, 2 cm long, longer than bracteole. Corolla 5.2 cm long, orange; dorsal lobe 2.3 × 0.8 cm; lateral lobes 1.8 × 0.4 cm. Labellum total length 5 cm; mid-lobe oblong with two longitudinal keels along the lower midline, 1.8 × 1.2 cm, light orange with a brighter orange streak in the centre; side-lobes elongate, 0.6 × 0.4 cm. Anther 1 cm long, bright orange. Anther appendage 0.7 cm, pale orange. Fruit unknown.

DISTRIBUTION. Endemic to Borneo. Known from the type specimen and again observed in the same area (Paling Paling Hills) in 1995.

ECOLOGY. Secondary forest, flowering April–May or after heavy rain.

*Z. eborinum* has some affinity with *Z. puberulum* Ridley var. *borneense* Smith and *Z. acuminatum* var. *borneense* Val. in the densely pubescent leaf edges and the basal inflorescence. Furthermore, the shape of the labellum in *Z. eborinum* is very similar to that of *Z. puberulum* var. *borneense*. However, *Z. eborinum* is easily distinguished from the

above-mentioned species by its smaller ovate leaves, the smaller globose inflorescences with ivory-white bracts and the orange labellum with two keels along the midline. It is the only species with white bracts described from Borneo (Fig. 2).

*Z. eborinum* can be very floriferous in cultivation and good growing conditions appear to have some pronounced morphological effects, enhancing the size of the leaves and the size and number of inflorescences.

**Zingiber flammeum** *I. Theilade & J. Mood* **sp. nov.** *species Z. colorato N.E. Brown affinis a qua differt ligulis longioribus, foliis infra minus pubescentibus, bracteis aurantiacis, floribus clare aurantiacis. Typus: J. Mood 178, Sabah, cultivated in the Tenom Orchid Centre, TOC 92 (originally from the Paling Paling Hills near Tenom) (holotypus SAN, incl. alcohol-preserved material and slides; isotypus AAU).* (Figs. 3 & 4)

**Fig. 3.** Habit of *Zingiber flammeum* (Photo: I. Theilade).

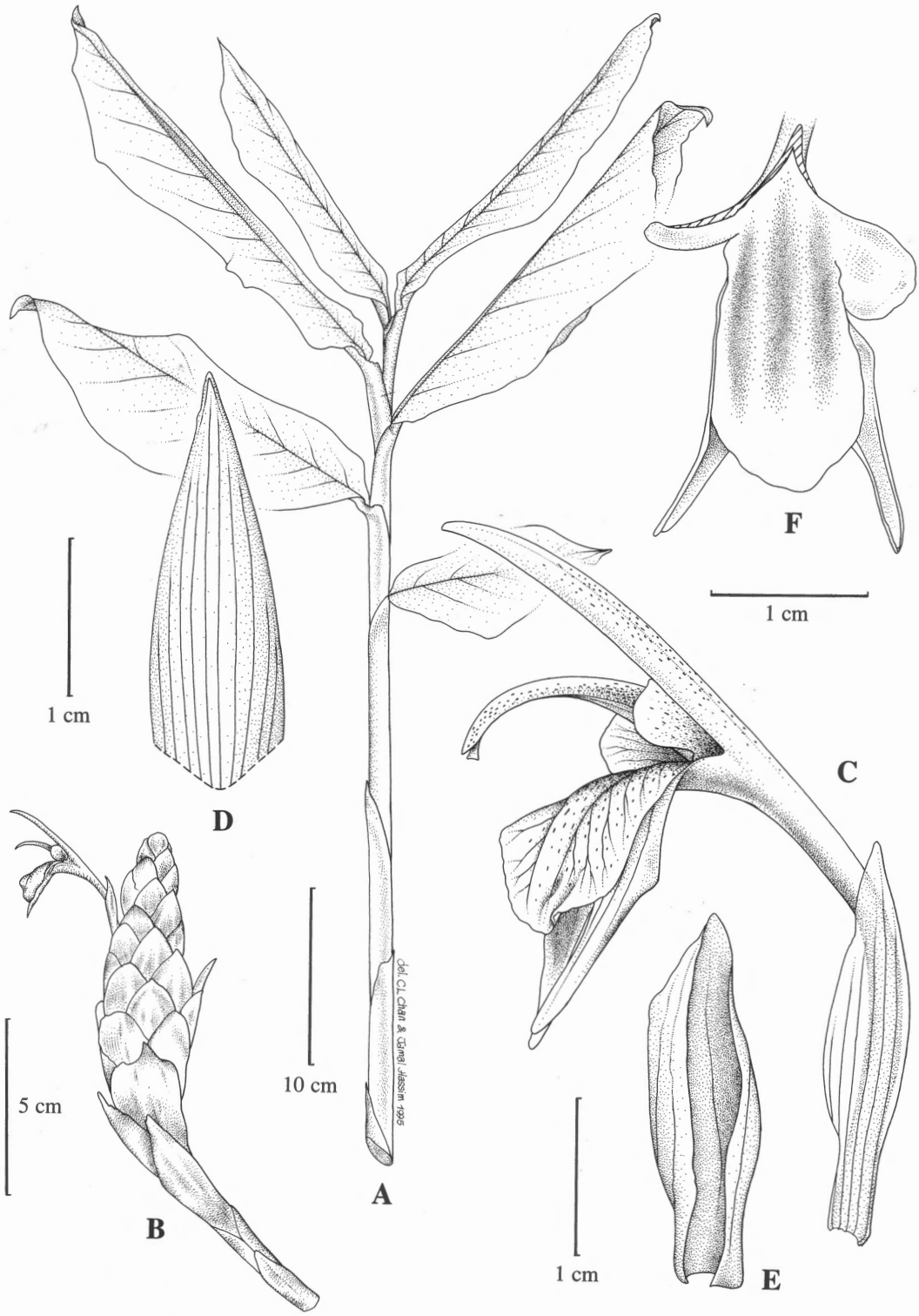


**Fig. 4.** *Zingiber flammeum*. **A.** Leafy stem. **B.** Inflorescence. **C.** Flower subtended by the bract. **D.** Dorsal petal. **E.** Bract. **F.** Labellum. All from *J. Mood* 178.

Leafy stem 45–75 cm long. Leaf sheaths hairy. Ligule 1–1.5 cm long. Petiole 2 mm long, pubescent. Leaves elliptic, 7–9 × 20–27 cm, upper surface glabrous, lower surface with a few silky hairs. Inflorescence radical, decumbent. Scape 4–5 cm long, dull red. Spike fusiform to elliptic, 8–10 × 2.5–3 cm, apex pointed. Bracts obovate, 2 × 1.5 cm, orange, turning dull orange as they mature, the basal bracts with a reddish colour. Bracteoles elliptic, 1.4 × 0.7 cm. Calyx 1.4 cm long. Corolla 5.4 cm long, orange; dorsal lobe 2.2 × 1 cm, lateral lobes 2.2 × 0.5 cm, free almost to the base. Labellum 5 cm long, bright orange; mid-lobe oblong, 1.5 × 0.8 cm; side-lobes 0.5 × 0.4 cm. Anther 1 cm long, orange. Anther appendage 0.8 cm long. Fruit unknown.

DISTRIBUTION. *Z. flammeum* has only been collected in the Paling Paling Hills and it is probably endemic to this locality.

ECOLOGY. Primary lowland forest in hilly areas, at around 300 m altitude.

This species is closely related to *Z. coloratum* N.E. Brown but is distinct by its longer ligules, the less hairy lower surface of the leaves, the orange bracts and bright orange flowers. In cultivation, *Z. flammeum* is very floriferous and the plant seems to be more vigorous than when found in the wild.

## ACKNOWLEDGEMENTS

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## REFERENCES

Smith, R.M. (1988) A review of Bornean Zingiberaceae (*Zingiber*). Notes Roy. Bot. Gard. Edinburgh 45: 409–423.